



U.S. Department
of Transportation
**Federal Aviation
Administration**

General Aviation Airworthiness Alerts

AC No. 43-16



**ALERT NO. 236
MARCH 1998**

**Improve Reliability-
Interchange Service
Experience**

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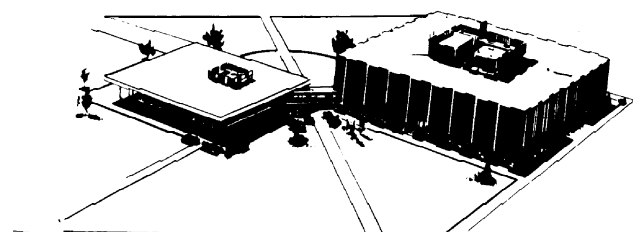
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**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20590**

GENERAL AVIATION AIRWORTHINESS ALERTS



FLIGHT STANDARDS SERVICE
Mike Monroney Aeronautical Center

The General Aviation Airworthiness Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those of you who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

AIRPLANES

AVIONS MARCEL

Avions Marcel	Flight Compartment
Model 20	Seat Defect
Falcon	2510

The pilot reported that the inboard armrest was "flexing excessively."

The submitter removed the upholstery on the seat back and discovered a broken seat back frame (P/N 262.200) tube. The break was located approximately 4 inches below the armrest attachment point. The break originated at a "pop" rivet hole located in the sheet metal. After a replacement part was received, the submitter stated reinforcement had been added to the part. The submitter

recommended frequent inspections of the "old-style" seat frames.

Part total time-7,374 hours.

BEECH

Beech	Wing Spar Corrosion
Model A-23	5711
Musketeer	

During an annual inspection, the submitter discovered severe corrosion on the right wing spar (P/N 169-110000-605) adjacent and under the spar bonding material. The submitter replaced the spar and stated the corrosion may have been caused by bonding material, water, and other contaminants contacting the spar surface.

During the past several years, the owner did not operate the aircraft and parked it outside.

With this fact in mind, be aware that even "low time" aircraft may not be in a safe operating condition!

Part total time-1,950 hours.

Beech Model 35 Series Bonanza **Flight Control Surface Balance 5540**

The FAA Aircraft Certification Office, located in Wichita, Kansas, submitted this article after the issuance of Safety Recommendation 97.077.

After an aircraft has been repaired or repainted (including the application of simple stripes), the ruddervators should be balanced in accordance with the Bonanza Maintenance Manual No. 35-590073. Additional information may be obtained from Airworthiness Directive (AD) 94-20-04.

Beech Model A-36 Bonanza **Navigation Light System Failure 3340**

The pilot opened the circuit to the navigation light system but could not reset the circuit.

An investigation disclosed the power wire for the right navigation light was chafed and had shorted to a rib. The submitter re-routed the wire through the wing and the channel located under the top wing skin. The right wing did not have chafe protection or support for the wire between the wing root and the wingtip. Apparently, the wing rib damage occurred when the wire came out of the channel, chafed against the wing rib, severed the wire, and produced electrical arcing.

The submitter inspected the left wing wire and found no damage. The left wing did not have chafe protection or support for the navigation light wire. During required inspections, remove the wingtip to check for this problem.

Part total time-1,272 hours.

Beech Model 58 Baron **Defective Mixture Control Cable 7602**

During flight, the left engine mixture control did not function. The pilot secured the engine and made a safe landing.

During maintenance, the submitter discovered wear on the engine mixture control cable (P/N 50-389010-19). The remainder of the cable was thin and only stretched and/or compressed during movement of the engine mixture control handle.

Operators should report any abnormal feel in the engine mixture control, and the problem should be investigated before the next flight.

Part total time not reported.

Beech Model 58 Baron **Defective Engine Mount 7120**

The technician conducted a scheduled inspection and found a crack in the right lower engine mount.

The crack was adjacent to the top outboard isolator attachment weld joint. Airworthiness Directive (AD) 95-03-14 addresses the lower left and right engine mount brackets (P/N 630695 and 630694). The submitter stated the "improved design" brackets are currently installed in compliance with AD 95-03-14. However, even when an aircraft is in compliance with AD 95-03-14, this area should be closely inspected during scheduled inspections and maintenance.

Part total time-1,010 hours.

Beech Model A-90 King Air **Engine Power Loss 7320**

The pilot reported that power to the right engine dropped to approximately 50 percent during flight. The pilot secured the engine and made a safe landing.

During an inspection, the technician found defective power turbine governor flyweights and bushing. These defective parts caused improper operation of the fuel control.

Part time since overhaul-3,600 hours.

Beech Model 200 King Air	Main Landing Gear "U-Joint" Bearing Failure 3230
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During a scheduled inspection, the submitter conducted a landing gear operational test and heard an abnormal "squealing" noise emanating from the right main gear torque tube area.

The submitter found severe corrosion on the torque tube universal joint bearing (P/N KP16BS). Apparently, the bearing "froze" in the support plate, and the shaft adapter (P/N 101-810021-9) began to turn on a nonbearing surface. The submitter stated a "sealed-type" universal joint bearing had been installed on this aircraft. The defect may have been caused by the high number of operating hours. The submitter did not find any defects in the left main gear. The bearings should be inspected at frequent intervals.

Part total time-10,900 hours.

Beech Model 200 King Air	Questionable Elevator Repairs 5520
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The aircraft received damage during a "hangar-rash" incident.

The submitter removed the right elevator and the fiberglass elevator tip and discovered three holes in the elevator's (P/N 101-610000-606) outboard trailing edge skin. The submitter stated these holes appeared to have been repaired at an earlier time with a material that appeared to be "automotive body filler." The submitter removed the "automotive body filler."

Part total time-8,540 hours.

**Beech
Model B-300
King Air**

**Brake Deice Valve
Failure
3000**

When the pilot cycled the brake deice system, the deice indicator on the right brake did not illuminate.

An inspection of the system disclosed an inoperative valve assembly (Bendix P/N 101-38012-5). The submitter stated: "This particular valve is not very reliable. After the new valves are installed, they only last 6 months."

The FAA Service Difficulty Program data base contains 18 very similar reports on the Model B-300 Series King Air. The valve sticks in either the "open" or "closed" position and causes the system to malfunction.

The submitter suggested that the manufacturer produce a "more reliable" valve.

Part total time-313 hours and 372 cycles.

CESSNA

**Cessna
Model 172R
Skyhawk**

**Burning Odor in the
Cockpit
3310**

During a training flight, the pilot detected a very strong burning odor. As the pilot prepared to land, the odor partially subsided. The pilot made a safe landing.

An inspection revealed a severely burned resistor. The resistor connects to the dimmer unit (P/N 1570301-4) of the instrument lighting system. The submitter discovered that the feedback resistors had been installed incorrectly. Apparently, when the dimmer pots were set to "full bright," the circuit bypassed the regulator which produced a high current flow through the resistor. After a discussion with a Cessna representative, the submitter disabled all the dimmers in the fleet.

Part total time-34 hours.

Cessna	Inoperative Fuel
Model 172R	Quantity Indication
Skyhawk	2841

The pilot reported that the right fuel quantity indicator did not operate.

The submitter traced the problem to the fuel quantity transmitter (P/N S3331-1) which is located in the right wing fuel tank. Apparently, the plastic float separated from the transmitter float arm and caused the arm to sink. The submitter stated that the crimp from the float to the float arm was inadequate. This unit was in operation for a short time.

Before a unit is placed in service, a maintenance technician should conduct thorough receiving inspections and pre-installation inspections.

Part total time-11 hours.

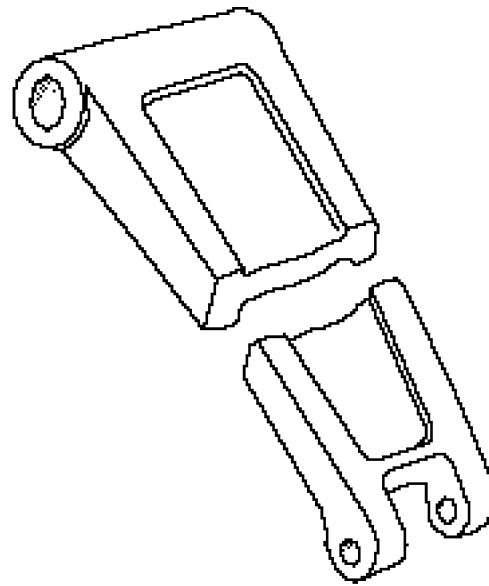
Cessna	Steering Control
Model P210	Failure
Centurion	3251

The pilot landed the aircraft on a grass runway. While the pilot taxied the aircraft to the parking ramp, the nosewheel began to "shimmy." The aircraft veered to the left and stopped.

The submitter inspected the aircraft and discovered a broken upper torque link (P/N 1243426-2). The break occurred between the attachment bolt holes. (Refer to the following illustration.) In the past, the submitter found cracks in the upper torque link; however, this is the first time the submitter has seen a crack cause a complete failure of the upper torque link.

If this failure occurred during flight, it could have caused loss of the lower strut or jammed the gear in the nose wheel during retraction.

Part total time-3,615 hours.



Cessna	Elevator Structure
Model 210	Damage
Centurion	5520

During a scheduled inspection, the submitter found structural damage inside the right elevator.

The submitter discovered seven damaged areas along the channel (P/N 1232622-26). The damaged areas were adjacent to a rivet which secured the channel.

Apparently, when the manufacturer installed the rivets, the bucking bar slipped off the buck tail and caused the damage. This was the second like defect discovered by this submitter.

Part total time-3,303 hours.

Cessna	Nose Landing
Model 310	Gear Failure
	3230

After takeoff, the pilot selected the "up" position on the landing gear. The pilot heard a loud thumping sound and felt a thud under the floorboard.

The landing gear position indicator did not illuminate. The pilot checked the tiptank mirrors and confirmed that the nose gear had only partially retracted. Attempts to lower the landing gear failed, and the pilot landed the aircraft in a "transit" position. The aircraft received minor damage.

An inspection disclosed the idler bellcrank (P/N 0842102) failed. The idler bellcrank is part of the landing gear retraction system and is located under the floorboard just forward of the pilot's seat. The bellcrank displayed no evidence of fatigue, corrosion, or a pre-existing crack. The submitter speculated that an improper rigging may have caused this problem.

The maintenance manual states that the nose gear rigging procedure is complex and detailed. Mechanics should adhere to the maintenance manual.

Part total time-4,130 hours.

Cessna Model 340A	Faulty Circuit Breaker 3060
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The pilot flew the aircraft through snow flurries. When the propeller deice system was activated, the cockpit filled with smoke. The pilot immediately deactivated the system and made a safe landing.

After an inspection, the submitter discovered the "pigtail" wires on the left propeller hub to the spinner had "shorted." Excessive heat burned the wire which runs from the circuit breaker to the deice gauge, and the circuit breaker failed to open the circuit.

Circuit breakers may go for long periods of time without being used. Maintenance technicians should conduct electrical load tests on new and old circuit breakers.

Part total time not reported.

Cessna Model 402B Businessliner	Nose Landing Gear Well Damage 5343
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During a scheduled inspection, the submitter found a tear in the nose landing gear wheel well structure.

The tear was located on the right side of the gear well skin under the down-lock hinge bracket (P/N 0842105-2). Also, a doubler (P/N 5213045-2) which attaches to the hinge bracket assembly was found broken. The submitter stated that this problem is commonly found on the left side since the bracket on the left side supports gear actuation. It is speculated this problem may be associated with ice building up on the leading edge of the gear doors. Ice in this location causes partial binding and stress when the gear is actuated.

Part total time-7,936 hours.

Cessna Model 414A Chancellor	Defective Pilot's Seat 2510
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The maintenance shop received a report of excessive movement in the pilot's seat back.

The submitter discovered a break in the upper portion of the pivot arm (P/N 0812735-8) and removed the pivot arm. This area is difficult to inspect because it is covered with upholstery.

The submitter stated this defect may have been caused by age-related metal fatigue or an excessive amount of weight on the seat.

Part total time-3,061 hours.

**Cessna
Model 750
Citation**

**Nose Landing Gear
Retraction Defect
3230**

Cessna recently issued the following information, dated January 13, 1998, to owners, operators, and maintenance technicians concerned with this model of aircraft.

“In the last 2 days we have encountered five instances where the landing gear handle would not move to the “gear-up” position. Apparently, this issue ties directly to the lower temperatures of the winter season. Each time this condition has happened, the outside air temperature (OAT) has been below freezing.

At this time, there are a number of unanswered questions concerning the cause of this condition. The solenoid that prevents the landing gear handle from being moved to the “gear-up” position is controlled by the squat switch. The position of the squat switch controls the solenoid. In each case, the technician verified integrity of the electrical system including the squat switch rigging. The nose gear squat switch may not be activated because of the lack of complete nose gear oleo extension after lift-off. Following two occurrences, the technician confirmed this theory by taking the aircraft to a hangar, “jacking up” the nose, and measuring the oleo barrel (chrome part) while the oleo was still cold. The oleo barrel should measure 9.75 inches in the “fully-extended” position; however, the oleo barrel of these two aircraft only measured 9.25 and 9.5 inches. Measurements of 9.25 and 9.5 inches may be enough to prevent the activation of the nose gear squat switch.

One possible explanation for the discrepancy in the measurements may be water entering and freezing in the lower barrel (lower gray casting that supports the wheel axle) below the bearing. The design of the nose gear incorporates an aluminum bearing surface inside the lower

barrel assembly. A wiper at the top of the lower barrel protects the bearing. Another possible explanation for the discrepancy may be that the bearing surrounds a steel barrel, and the aluminum bearing contracts faster than the steel barrel.

The technician parked the aircraft in a hangar; the aircraft was allowed to warm up; and the gear reached the “fully-extended” position without additional force.

Recently, two service bulletins were released by Cessna that improve the nose landing gear. A team, which consisted of Cessna technicians and engineers, was dispatched to Minneapolis, Minnesota to accomplish the requirements of the service bulletins. The team will disassemble the nose gear and perform a complete inspection to determine the cause of this issue.

You can expect new information to be released very soon which will improve the situation.”

MOONEY

**Mooney
Model M20K
Engine Teledyne
Continental
Model TSIO-360-LB**

**Engine Oil Leak
7920**

Information for the following article was submitted by the FAA Aircraft Certification Office, ACE-115A, located in Atlanta, Georgia.

During flight, the pilot noticed oil coming from the cowlings and made a safe, precautionary landing.

The submitter discovered the turbocharger oil check valves, located in the oil supply lines, were the source of the oil. The oil check valves are secured by an Adel-type clamp. Apparently the protective rubber antichafing material of the clamp was worn away due to vibration,

age, and deterioration. The clamp loosened and allowed metal-to-metal contact between the clamp and one of the check valves. Both check valves showed significant chafing; however, one check valve was worn enough to allow the oil to leak.

The FAA Service Difficulty Program data base revealed four similar reports since 1974 involving Mooney Model M20K aircraft. However, it should be kept in mind that the TSIO-360 series engines are also used on the turbocharged Cessna 337, Piper PA-28, PA-28R, and PA-34 series airplanes. These series airplanes have similar installation features and could also be susceptible to this type of failure.

These clamps are used in various sizes and are constructed of various materials for the turbocharger oil lines and check valves of most TSIO-360 series engines. Most of the clamp materials are low-carbon steel or aluminum bands with Nitrile or Chlorophrene cushions, and the valve body is constructed from aluminum. In this case, the valves should have been secured with a clamp having an aluminum band and a Nitrile cushion. On October 8, 1987, Teledyne Continental Motors (TCM) released Service Bulletin M87-14, Rev. 1, which addressed the turbocharger check valve clamp issue and announced new clamp part numbers for engine models TSIO-360-GB, -LB, and -MB. In addition, the Teledyne Continental Motors (TCM) Overhaul Manual for the TSIO-360 series engines (P/N X30596A) contains a checklist for an annual or a 100-hour inspection which calls for the inspection of fuel and oil hoses and lines for deterioration, leaks, and chafing.

The purpose of this article is to remind maintenance personnel to be diligent when performing maintenance. It is recommended that oil lines, hoses, valves, and clamps with 500 or more hours time in service (TIS) be inspected for chafing within the next 25 hours TIS (especially if they have not been inspected within the last 100 hours). When inspecting

these parts, ensure that the correct clamp is installed.

PIPER

Piper Model PA 18-135 Super Cub	Defective Engine Induction Airhose 7160
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After poor engine performance, the pilot delivered the aircraft to the maintenance shop.

During an operational test, the engine ran "rough" through all power settings, and at full throttle was approximately 250 RPM below normal. An investigation disclosed that the induction airhose lining swelled and cracked around the inside diameter circumference. Pieces of the hose lining were missing and may have passed through the combustion chambers. The swelling in the hose lining restricted airflow to the engine.

Part total time not reported.

Piper Model PA 23-250 Aztec	Throttle Cable Failure 7603
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During an engine-starting procedure, throttle control movement was very stiff. When the pilot pulled back on the throttle, the cable broke.

The submitter removed the throttle cable (P/N 455-230). All but one of the cable strands were broken. The submitter stated that the cable strands were broken before this incident. The submitter suggested that closer attention be given to the throttle assembly during scheduled inspections and maintenance. Thoroughly investigate binding, stiff operation, restricted movement, or any other anomaly.

Part total time not reported.

**Piper
Model PA 28R-201T
Turbo Arrow**

**Firewall Defect
5412**

During replacement of the alternator, the submitter discovered a hole on the lower section of the firewall just aft of the turbocharger.

Excessive heat from the turbocharger caused corrosion, and the corrosion created the hole. This is the second like defect found by this submitter. The report did not mention the presence of heat shields or firewall insulation.

At every opportunity, this area should be thoroughly inspected.

Part total time-3,049 hours.

**Piper
Model PA 28RT-201T
Engine Teledyne
Continental
Model TSIO-360-FB
Turbo Arrow**

**Engine Mixture
Control Failure
7602**

Information for the following article was submitted by the FAA Aircraft Certification Office, ACE-115A, located in Atlanta, Georgia.

The pilot made a successful off-airport landing without injury to the pilot or damage to the aircraft.

An investigation revealed that when the aircraft reached cruising altitude, the pilot leaned the mixture control to the point of engine roughness. When the pilot attempted to enrich the mixture, the mixture control would not advance. The submitter discovered the mixture control mechanical stop pin came loose in the retaining hole and migrated out of position. Also, the submitter stated there is a possibility that maintenance personnel may be repairing loose stop pins by using an epoxy filler.

The FAA Service Difficulty Program data base revealed no other reports of this nature. An investigation by the FAA and Teledyne

Continental Motors (TCM) does not indicate that this is a systemic problem. There are no other known reports of failures of this nature, and there is no indication that a design change is needed. However, the reports of maintenance personnel repairing loose stop pins by using an epoxy filler does cause concern. TCM does not have a procedure for the repair of loose stop pins; therefore, FAA approval is required after this type of repair. It should be noted that this problem could occur in TCM engine models other than those previously listed which have the same or similar design.

If you experience this type of problem, please submit an FAA Form 8010-4, Malfunction or Defect Report. Your report will greatly enhance safety. Also, please report any information concerning the use of an epoxy filler to repair loose stop pins. The FAA and the manufacturer cannot fix this problem unless you complete and submit a report.

**Piper
Model PA 30
Twin Comanche**

**Control Yoke
Defects
2701**

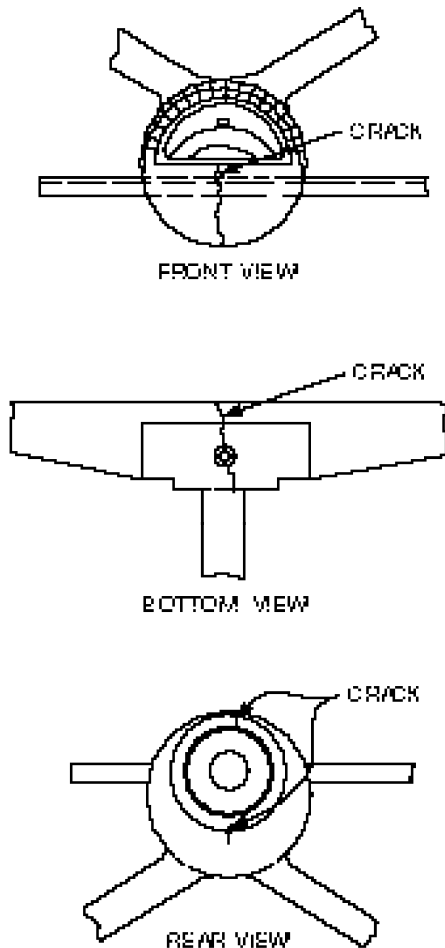
During routine maintenance, the submitter removed the flight control yokes and found cracks on both yokes.

The cracks ran from the attachment pin to the back of the control yoke. The submitter stated that the location of the cracks is similar to those described and pictured in Airworthiness Directive (AD) 64-06-06 and in Piper Service Letter (SL) 369. (Refer to the following illustration.) AD 64-06-06 and SL 369 are not applicable to this aircraft. The submitter suggested that the FAA issue an AD to include all aircraft susceptible to cracks in the flight control yoke.

The occurrence of this type of defect has been published many times. If this defect occurs during a critical phase of flight, the result could be catastrophic. If the yoke is constructed of plastic, the technician should

inspect the assembly for signs of crazing, chipping, cracking, or any other defect which may lead to failure.

Part total time not reported.



Piper
Model PA 31-310C
Navajo

Flight Control
Surface Hinge
Corrosion
5520 and 5540

During a scheduled inspection, the submitter discovered that the top rudder hinge bolt was

“seized” to the hinge bearing and could not be freed.

The submitter discovered severe corrosion in the hinge assembly and the vertical stabilizer hinge (P/N 48055-00), the rudder hinge (P/N 51108-04), the hinge bearing (P/N 452 386), and the bolt (P/N 400 438).

The submitter suggested that this area be thoroughly inspected during scheduled inspections and maintenance.

Part total time-3,572 hours.

Piper	Main Landing Gear
Model PA 31T-620	Defect
Cheyenne II	3230

The pilot reported that the left main landing gear would not fully retract, lock, or extend. The pilot used emergency extension procedures to extend the gear and make a safe landing.

An inspection of the system revealed a crack in the left main gear-up lock support bracket. Due to the weakened bracket, the up-lock hook moved sideways and lodged between the roller and the gear leg. This is the second like defect this submitter has discovered.

Part total time-3,700 hours.

Piper	Wing Structure
Model PA 34-200	Defects
Seneca	5711

During a scheduled inspection, the submitter discovered a broken false spar and a broken wing rib at wing station 69.24 on the left wing.

The submitter speculated the damage was caused by either a hard landing or a high-speed landing. Prior to this incident, a Piper kit (P/N 760-696V) had been installed on this aircraft. Airworthiness Directive (AD) 73-11-02 , which was issued to detect weakening of the main landing gear support structure, addresses this problem; however, the AD does not apply to aircraft having this serial number.

This area deserves close attention during scheduled inspections and maintenance.

Part total time-5,500 hours.

Piper	Nosewheel Steering
Model PA 34-220T	Failure
Seneca	3251

The pilot reported an inoperative nosewheel steering system.

During an investigation the submitter discovered a broken bushing. The lower-mounting tab, which is on the steering arm (P/N 95395-00), was also found broken. Metal fatigue may have caused this failure.

The submitter stated technicians should conduct frequent and thorough inspections of the entire nosewheel steering assembly. Also, it is believed technicians should conduct a dye-penetrant inspection of the critical areas (at least) annually.

Part total time-5,863 hours.

Piper	Aileron Nose Rib
Model PA 44-180	Cracks
Seminole	5751

During replacement of the wing "skins," the left and right ailerons were removed. The submitter discovered cracks adjacent to the attachment bolt holes in both aileron nose ribs (P/N's 86562-03 and -02).

Piper Service Bulletins (SB) 702 and SB 725A address this subject, and this aircraft was in compliance with both SB's. The cause of this defect may be either operational load stresses or age-related metal fatigue.

If this type of defect is discovered, the technician should conduct a thorough inspection of the remaining flight control surfaces.

Part total time-4,200 hours.

HELICOPTERS

AGUSTA

Agusta	Chip Light
Model A109C	Illumination
	6300

Approximately 5 minutes after takeoff, the main transmission chip light illuminated. The pilot could not extinguish the chip light by using the "zap-off" procedure. A safe landing was made.

Both chip plugs were removed for inspection, and the top chip plug was clean; however, the bottom chip plug retained four large metal chips. The submitter removed the transmission oil filter and discovered an excessive amount of metal filings. The submitter opened the transmission gear box and discovered excessive "spalling" on the input quill shaft (P/N 109-0403-06-105) and the Gleason crown gear. A 200-hour oil and filter change and nondestructive inspection were accomplished 23 hours prior to this occurrence; however, the nondestructive inspection did not reveal any defects in the input quill shaft teeth.

Part total time-1,178 hours.

BELL

Bell	Improper Safety
Model 206 L4	Wire Installation
Long Ranger	6300

During a scheduled inspection, the submitter discovered that a safety wire "pig tail" was "turned" in the wrong direction, and the "pig tail" wore a groove in the face of the main rotor drive shaft adapter

(P/N 406-040-542-106). If this condition had not been discovered, the main rotor drive shaft could have failed.

The submitter suspected "human error" during maintenance caused this damage.

Part total time-2,043 hours.

**Bell
Model 407**

**Restricted Movement
of the Cyclic Control
6700**

The pilot reported after takeoff from an offshore platform that the cyclic control would not move to the aft position. The pilot was able to free the cyclic control by exerting an estimated 40 pounds of pressure. After the pilot made a safe landing, the cyclic control malfunctioned again.

An inspection revealed that the centering switch (P/N 407-076-502-119), which is located at the pilot's seat compartment, was contacting the target plate. The submitter stated the "lead seal" installed by the manufacturer was still intact. In accordance with the manufacturer's technical data, the switch should have been repaired to between .030 and .070 inch of clearance. Extreme care should be exercised during adjustment of the centering switch to ensure that there is no interference.

Part total time-42 hours.

**Bell
Model 412**

**Fuel Pump Coupling
Failure
2822**

The pilot reported that during an outbound flight to an offshore platform, the number 1 engine "flamed out" and was secured. The pilot made a safe landing at a shore base.

Maintenance technicians discovered that the internal spline of the fuel pump (P/N 025277-300-06) drive coupling failed. The failure may have been caused by a high number of operating hours.

Part total time-8,164 hours. Part time since overhaul-4,191 hours.

EUROCOPTER

**Eurocopter
Model AS 350 BA**

**Smoke in the
Cockpit
3400**

During flight, the pilot detected an "electrical-type" burning odor and smoke in the cockpit. The pilot made a precautionary landing.

After an inspection, the submitter determined that the radar altimeter internal-power supply had shorted to ground, and the vent blowers distributed the odor and smoke throughout the cockpit.

Part time since overhaul-10 hours.

**Eurocopter
Model AS 350BA
Astar**

**Bearing Failure
6520**

During flight, the pilot experienced a loss of yaw (pedal) control authority and made a safe run-on landing.

An investigation disclosed that the tail rotor control spider bearing (P/N 6010-2RS1MT33A) failed. This bearing is common in two tail rotor control spiders (P/N's 350A33-2004-03 and -05), and all Eurocopter AS 350/355 series helicopters use the bearing. The submitter reviewed the maintenance records (dating back to 1992) of 22 like helicopters that were flown in Hawaii. Maintenance records indicate technicians removed 72 percent of the bearings before the 3,000-hour replacement interval. The defective bearings will be found during maintenance by following the Eurocopter maintenance recommendations. In the past, a routine maintenance inspection has been successful in finding and eliminating a defective part before a problem occurs.

The FAA has asked Eurocopter to review the service history of these bearings, determine the cause of the high rate of early replacements, and propose a solution.

Part total time-466 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

CHRISTIAN EAGLE

**Christian Eagle
Model II**

**Defective Flying Wire
Attachment
5744**

During a scheduled inspection, the submitter discovered a wrinkle in the wing-covering fabric.

The wrinkle was located on the inboard trailing edge of the top wing. The "drag/antidrag" wire rear attachment block was found broken. The block attaches the wire to the rear wing spar. Also, the trailing edge-to-center hoop attachment block failed. The submitter speculated the hoop attachment block failure was the result of the wire attachment block failure.

Part total time not reported.

GLASAIR

**Glasair
Model II**

**Defective Rudder
Trim System
2721**

During a takeoff roll, the rudder went to the full-left position, and the pilot decided to abort the takeoff. The pilot applied maximum-braking action; the brakes failed; a brake line ruptured; and the escaping brake fluid caught on fire. The extent of the damage was not reported.

An investigation of the rudder system revealed that the rudder trim switch was stuck in the left position which caused full-left rudder deflection. During troubleshooting, the switch (rocker type) only failed approximately 10 percent of the time. Operators and maintenance personnel should be aware of this anomaly and conduct a thorough inspection of the system at every opportunity.

Part total time-100 hours.

NORTH AMERICAN

**North American
Model AT-6C
Texan**

**Defective Tail Cone
Attachment
5500**

During a scheduled inspection, the submitter discovered severe chafing at the point where the tail cone attaches to the empennage.

The lower right tail cone attachment point displayed signs of extreme metal wear. Two bolts (P/N AN5) attach the aluminum tail cone structure to the steel empennage structural tube. The washers, which are installed under the nuts of these two bolts, were worn approximately two-thirds through the thickness of the aluminum attachment angles. A groove was worn into each of the bolts, and the bolt holes were elongated to approximately .25 inch by .4375 inch. The submitter stated this damage was caused by the use of very long bolts that "bottomed out" before the two structures were secure.

Part total time-7,000 hours.

QUESTAIR

**Questair
Model Venture**

**Landing Gear Failure
3230**

The pilot reported that the landing gear would not extend. In order to use the emergency system, the pilot opened the bypass valve, and the landing gear fell toward the "down" position. All attempts to secure the gear in the "down-and-locked" position failed, and a gear-up landing was made. There were no personal injuries; however, the aircraft sustained extensive damage.

This aircraft was originally equipped with electric landing gear motors. The aircraft was modified to include a hydraulic landing gear system which uses an electrically-operated hydraulic pump and actuation cylinders. The emergency system uses a hand pump, reservoir, and a separate pair of cylinders for gear actuation. A bypass valve allows fluid to flow through the main system when the hand

pump is operating the emergency system. In this case, the emergency system developed a leak in the lines and fittings at the hand pump, which depleted the emergency system fluid. When the emergency system was activated, air was introduced into both systems and prevented the gear from extending to the "down-and-locked" position.

Part total time not reported.

PROPELLERS AND POWERPLANTS

TEXTRON LYCOMING

**Textron Lycoming
Model O-320-D3G**

**Crankshaft Failure
8520**

This engine was installed in a Piper Model PA 28-161 aircraft. While attempting takeoff, the pilot heard a loud knocking sound and aborted the takeoff. After the removal of cylinders and connecting rods, the technician found a broken crankshaft at the No. 4 connecting rod journal. The submitter did not offer a cause for this failure.

Part total time-6,600 hours. Time since overhaul-180 hours.

AIR NOTES

UNAPPROVED PARTS NOTIFICATION

The following Unapproved Parts Notification was accepted and published by the Suspected Unapproved Parts Program Office, **AVR-20**. Telephone (703) 661-0581, FAX (703) 661-0113.

UNAPPROVED PARTS NOTIFICATION

**NO. 97-272
January 20, 1998**

AFFECTED ENGINE: Pratt & Whitney model JT8D, series -1 through -17.

PURPOSE: The purpose of this Unapproved Parts Notification is to advise all owners, operators and maintenance entities that a large number of combustion chambers have been improperly repaired.

BACKGROUND: During a receiving inspection by a major international operator, it was discovered that improper repairs were accomplished on 18 JT8D engine combustion chambers. The accompanying documents stated that the mount lug positioning pin hole bushings, P&W part number 787409, were replaced with new bushings when in fact the new bushings showed signs of wear on the inside diameter. The subsequent suspected unapproved parts investigation revealed that International Jet Repairs, Inc. (IJR), Repair Station XQ4R657M, located at 2358 West 8th Lane, Hialeah, Florida 33010, accomplished the unapproved repairs. The investigation further determined that IJR obtained a total of over 2,000 new bushings from an unapproved source since February 1994. These bushings may have been installed in combustion chambers during overhaul; however, some or all lacked a hardcoat process on the inside surface which was stated to have been accomplished on the accompanying documentation. The hardcoat process is detailed in P&W Service Bulletin number 4421. This hardcoat process was also lacking on some of the used, reinstalled bushings and was difficult to detect due to a covering of a "molycoat" lubricant. Dimensional inspections were also conducted on five combustion chambers overhauled by IJR. All were out of Pratt & Whitney limitations in one or more dimensions.

RECOMMENDATION: Regulations require that type certificated products conform to their type design. Aircraft owners, operators, maintenance organizations, manufacturers, and parts suppliers should inspect their aircraft and/or aircraft parts inventory for combustion chambers approved for return to service or overhauled by International

Jet Repairs, Inc. If these items are installed in an engine, appropriate action should be taken. If found in existing aircraft parts stock, it is recommended they be quarantined to prevent installation in aircraft until such time they can be inspected for conformity and/or approved for return to service.

FURTHER INFORMATION: Further information may be obtained from the Federal Aviation Administration (FAA), Flight Standards District Office (FSDO) shown below. The FAA would appreciate any information concerning these parts, the discovery of the above referenced unapproved parts from any source, the means used to identify the source, and the action taken to remove them from service or stock. Also, the FAA would appreciate information concerning premature engine failures attributed to the above referenced repairs.

This notice originated from: FAA;
Dallas FSDO; 3300 Love Field Drive;
Dallas, TX 75235; telephone (214) 902-1800;
FAX (214) 902-1862.

- 98-02-07** Hartzell HC-E4A-3 propellers require replacement of propeller blade counterweight clamp bolts.
- 98-02-08** Textron Lycoming 320 and 360 reciprocating engines require inspection of inside diameter of crankshaft.
- 97-25-07** GE Aircraft Engines CT7-series turboprop engines require eddy-current inspection of disk holes.
- 98-01-06** Precision Airmotive Corporation carburetors require inspection of carburetors with two-piece venturi.
- 98-02-09** Allison AE 3007A and AE 3007C series turbofan engines require inspection of No. 4 bearing deterioration.

ALERTS ONLINE

This publication is now available through the FedWorld Bulletin Board System (BBS), via the Internet.

You may directly access the FedWorld BBS at telephone number (703) 321-3339. To access AC 43-16, General Aviation Airworthiness Alerts, through the Internet, use the following address: "<http://www.fedworld.gov/ftp.htm>". This will open the "FedWorld File Transfer Protocol Search And Retrieve Service" screen. Page down to the heading "Federal Aviation Administration" and select "FAA-ASI". The file names will begin with "ALT", followed by three characters for the month, followed by two digits for the year (e.g. "ALTJUN96.PDF").

Also available at this location are the Service Difficulty Reports (SDR's) for the past 2 months, which may be of interest.

AIRWORTHINESS DIRECTIVES (AD'S) ISSUED IN JANUARY 1998

- 98-01-01** Cessna Models 172R and 182S require installation of placards to prohibit operation in IFR conditions.
- 98-01-10** Empressa Models EMB-110P1 and EMB-110P2 require inspection of fillet area of MLG.
- 98-01-14** Cessna Model 182S requires replacement of Aeroquip engine exhaust mufflers.
- 98-02-05** A priority letter for Cessna Model 172R requires inspection of Aeroquip mufflers.

The Regulatory Support Division (AFS-600) has established a "HomePage" on the Internet, through which the same information is available. The Internet address for the AFS-600 "HomePage" is:

"<http://www.mmac.jccbi.gov/afs/afs600>"

Also, this address has a large quantity of other information available. There are "hot buttons" to take you to other locations and sites where FAA Flight Standards Service information is available. If problems are encountered, you can "E-mail" us at the following address.

If you wish to contact the staff of this publication, you may do so by any of the means listed below.

Editor: Phil Lomax, AFS-640
Telephone No.: (405) 954-6487
FAX No.: (405) 954-4570
or (405) 954-4748

Internet E-mail address:
ga-alerts@mmacmail.jccbi.gov

Mailing Address:
FAA
ATTN: AFS-640 ALERTS
P.O. Box 25082
Oklahoma City, OK 73125-5029

We welcome the submission of aircraft maintenance information via any form or format. This publication provides an opportunity for you to inform the general aviation community of problems you have encountered as well as bringing them to the attention of those who can resolve these problems. Your participation in the Service Difficulty Program reporting process is vital to ensure accurate maintenance information is available to the general aviation community.

ELECTRONIC AVAILABILITY OF INFORMATION

In light of the previous article, we solicit your input and ideas for the future of this publication. The electronic information media has made available a vast amount of information in a more expedient and efficient manner. We believe the expanded use of this media can bring about the conveyance of safety information in a more efficient and timely manner.

We are currently distributing approximately 28,000 printed copies of this publication each month, and the distribution number continues to increase. The cost for publishing, printing, and mailing this publication has also increased, and there has been a substantial negative impact on our budget allotment.

In an effort to save tax dollars and make better use of the electronic media, we encourage our readers to cancel their printed copy subscription to this publication and use the computer to download the monthly issues. (The instructions for downloading the Alerts were given in the preceding article.) We will be happy to help you if you require further assistance. Some of you may not yet have the equipment necessary to receive the information electronically, and you are welcome to continue receiving it in the printed form.

There have been some efforts to charge an annual subscription fee for this publication. So far, these efforts have not been given much credence. We will make every effort to keep this a free-of-charge publication. However, we need your input and ideas. Would you be willing to pay a nominal subscription charge for this publication?

We appreciate your interest in this publication and the opportunity to serve you. Please offer

any comments, questions, or suggestions to us via any of the means listed in the preceding article.

SUSPECTED UNAPPROVED PART (SUP) SEMINAR

As announced in previous editions of the Alerts, the Designee Standardization Branch, AFS-640, is once again presenting the Suspected Unapproved Part (SUP) seminar. A schedule of the seminars and information for requesting a SUP seminar in your area can be found below.

Seminar dates will be announced in the Alerts, the Designee Update Newsletter, and on the Internet under FedWorld.gov. You may access the FedWorld BBS directly at (703) 321-3339. You may access the Alerts through the Internet, using the Regulatory Support Division, AFS-600, "HomePage" at the following address.

<http://www.mmac.jccbi.gov/afs/afs600>

The seminar will discuss the following:

1. Introduction to the policy of the Suspected Unapproved Part Program Office, AVR-20.
2. What is an approved part/unapproved part? How can approved parts be produced?
3. What is a suspected unapproved part?
4. How is a suspected unapproved part reported in accordance with FAA Order 8120.10A, Suspected Unapproved Parts Program, and utilizing FAA Form 8120-11, Suspected Unapproved Parts Notification?
5. How do you determine the status of parts?
6. What is the procurement process?
7. How do you use the Internet and FedWorld to find a list of unapproved parts?

The cost of this 8-hour seminar will be \$60. The seminar may be used for the Inspection Authorization (IA) renewal training requirement contained in Title 14 of the Code of Federal Regulations (14 CFR) part 65, section 65.93(a)(4).

The seminar is open to the aviation industry. Anyone wishing to attend may telephone (405) 954-0138. Payment is required in advance by using VISA, MasterCard, or a check. **When scheduling attendance, please reference "AFS-75."**

SCHEDULE FOR SUSPECTED UNAPPROVED PART (SUP) SEMINAR

<u>Seminar No.</u>	<u>1998</u>	<u>Location</u>
759804	Apr 22	Charleston, WV
759805	May 13	Cleveland, OH
759806	Jul 15	Seattle, WA
759807	Jul 17	Anchorage, AK
759808	Aug 5	Ft. Lauderdale, FL
759809	Sep 16	Springfield, IL
759901	Oct 21	Rochester, NY
759902	Nov 18	Wichita, KS

If you require additional or special SUP seminars, please write to: FAA; ATTN: Mr. Elmer Hunter (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125. Depending on manpower and the availability of AFS-640 personnel, the requests for additional SUP seminars may be authorized. The cost for the additional SUP seminars is \$60 per person. We would like a minimum of 40 attendees for a 1-day seminar and no more than 60 attendees. When the number of attendees is greater than 70, we will conduct two 1-day seminars. The registration process is the same as previously discussed in this article. Additional SUP seminars will be made available to the public regardless of location. If you have specific questions regarding an additional SUP seminar, please contact Mr. Elmer Hunter at (405) 954-4099.

**FAA FORM 8010-4, MALFUNCTION OR
DEFECT REPORT**

For your convenience, FAA Form 8010-4, Malfunction or Defect Report, will be printed in every issue of this publication.

You may complete the form, fold, staple, and return it to the address printed on the form. (No postage is required.)

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